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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,839

12/29/2005

Katsuhiko Nishiwaki

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KENYON & KENYON LLP  
1500 K STREET N.W.  
SUITE 700  
WASHINGTON, DC 20005

EXAMINER

WEISS, HOWARD

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

12/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,839	<b>Applicant(s)</b> NISHIWAKI, KATSUHIKO	
	<b>Examiner</b> Howard Weiss	<b>Art Unit</b> 2814	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Attorney's Docket Number: 13596/1

Filing Date: 12/29/2005

Continuing Data: 371 of PCT/JP04/08516 (6/10/2004); RCE established 9/19/2008

Claimed Foreign Priority Date: 7/11/2003 (JPX)

Applicant(s): Nishiwaki

Examiner: Howard Weiss

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/19/2008 has been entered.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7 to 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what "the other portion of the contacting portion" is in Claim 7. The claim does not setup all the portions except for the corner portion.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art and Yilmaz (U.S. Patent No. 4,809,045).

Admitted Prior Art Figures 18 to 23 show most aspects of the instant invention including:

- a plurality of active devices arranged on a substrate facing its principle plane
- emitter regions **900,904**, body regions **903** and drift regions **902** arranged one on top of each other in this order
- field regions **911** of low impurity concentration, dividing said device into cells and of the same conductive type as a portion (i.e. **900**) of the emitter region
- contact electrodes **909** provided outside the substrate and connecting with emitter and field regions via a contacting portion **908**
- gate electrodes **906** insulated **907** from said substrate

The Admitted Prior Art does not show the field region contacting the contact electrode at a corner portion of the contacting portion. Yilmaz teaches (e.g. Figures 4 to 7) to have the emitter regions **94** with contacting portions **92d** to provide a relatively large area ohmic contact between emitter electrode and base region surface (Column 2 Lines 60 to 64). When combined with the device of the Admitted Prior Art, the field region will contact the contact electrode at a corner portion of the contacting portion. It would have been obvious to a person of ordinary skill in the art at the time of invention to have the field region contacting the contact electrode at a corner portion of the contacting portion as taught by Yilmaz in the device of the Admitted Prior Art to provide a relatively large area ohmic contact between emitter electrode and base region surface.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art and Yilmaz, as applied to Claim 7 above, and in further view of Murakami (JP 05-090595).

The Admitted Prior Art and Yilmaz show most aspects of the instant invention (Paragraph 5) except for a corner of the contacting portion formed with a curve line or obtuse angle. Murakami teaches (e.g. Figures 1) to have corners **R** of the contacting portion **33** of the active device formed with a curve line or obtuse angle to minimize on-state resistance (see Purpose). It would have been obvious to a person of ordinary skill in the art at the time of invention to have corners **R** of the contacting portion **33** of the active device formed with a curve line or obtuse angle as taught by Murakami in the device of the Admitted Prior Art and Yilmaz to minimize on-state resistance.

7. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior and Yilmaz, as applied to Claim 7 above, and further in view of Kunori et al. (U.S. Patent No. 6,459,128).

The Admitted Prior and Yilmaz show most aspects of the instant invention (Paragraph 5) except for the contacting portion being broader at the end portions than in the central portion. Kunori et al. teach (e.g. Figures 31 and 32) to have a contacting portion being broader at the end portions **81** than in the central portion **82** to provide a device with high withstand voltage, a reduce capacitance and a low conduction resistance (Column 2 Lines 48 to 50). It would have been obvious to a person of ordinary skill in the art at the time of invention to have a contacting portion being broader at the end portions than in the central portion as taught by Kunori et al. in the device of the Admitted Prior and Yilmaz to provide a device with high withstand voltage, a reduce capacitance and a low conduction resistance.

***Allowable Subject Matter***

8. Claims 11 and 12 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter:  
A IGFET as claimed including having a corner portion of the emitter region mated with the corner portion of the contacting electrode and having lower the impurity concentration at the corner portion could not be anticipated nor in combination be rendered obvious over the prior art of record.

***Response to Arguments***

10. Applicant's arguments with respect to Claims 7 to 10 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via [Howard.Weiss@uspto.gov](mailto:Howard.Weiss@uspto.gov). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.
13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

14. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ 341	thru 11/26/2008
Other Documentation: none	
Electronic Database(s): EAST	thru 11/26/2008

HW/hw  
3 December 2008

/Howard Weiss/  
Primary Examiner  
Art Unit 2814